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Utilizing Technology Development As a Support Of  
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Industrial Revolution 4.0

*Fadilla Saputri*

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Delmira Syafrini, Reno Fernandes, Lia Amelia, Nurlizawati, Khairul Fahmi  
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# Utilizing Technology Development As a Support Of Students Towards a Golden Generation in The Era Of The Industrial Revolution 4.0

Fadilla Saputri

Faculty of Social Science, Universitas Negeri Padang, Padang, Indonesia

\*e-mail : [fdllasaputri27@gmail.com](mailto:fdllasaputri27@gmail.com)

## Abstract

This research is motivated by technological developments that coincide with the prediction of the golden generation in the next few years which will transform the quality and quantity of human beings for the better. In fact, in 2045, the Indonesian people will face one of the most important moments in the course of history, that is, they will face a phase where the productive age will reach 75% of the population, which is called the golden generation. The flow of technological developments in the current era of digitalization grows and develops together with the presence of the younger generation as the golden generation which is estimated to be a cog in the pattern and process of life development. The life of today's young generation, especially students as the final generation within the framework of education has a fairly collective role along with the development of information and communication technology in the digital world to form quality students who are able to have high competitiveness as the golden generation. The analysis in this paper is focused on efforts to utilize technological developments as a support to create students to be able to have competitiveness in predicting the golden generation that will be formed in the era of the industrial revolution 4.0. The sub-analysis focuses on the use of technological developments by students, students who are agents of change, the readiness of students themselves as the golden generation, and students as drivers of innovation in the digitalization era.

## Keywords

agents of change, golden generation, technology

## 1 Introduction

The Indonesian nation in 2045 will face one of the most important momentums in the course of history, namely entering the 100th year of independence accompanied by the number of productive ages in that year which reaches 75% of the total population which is called the golden generation. In order to prepare for the rise of Indonesia's golden generation, Indonesian people are needed who are qualified, advanced, independent, and modern, as well as increasing the dignity of the nation and also being able to master technological developments.

Today the development of technology within the framework of digitalization has entered its peak phase. The regeneration and aluisticism of tradition has become a new challenge. One of the driving actors is students. Students as the younger generation have gained such a strong place as drivers of innovation in the industrial revolution era. Students as the z generation are the most powerful and competitive agents as the golden generation where as many as 70% of people are recorded as being of productive age. Along with technological developments, students are also subject to mastery of technology.

The nation's generation has a dominant role as part of the successor to drive the spear of change. The nation's generation is linguistically interpreted as a connotation of hope in the future regarding the presence of generations of Indonesians who are genius and excel in all fields of science and technology to build the Unitary State of the Republic of Indonesia into a big, strong and sovereign nation in the eyes of the world (Iskandar, 2014). At the present time the rise of technological developments is a driving factor that requires students as agents of change to be able to continue to develop their intellectual abilities so that they are able to survive in the midst of a situation in which there are always changes, be it slow or fast changes, in this case the progress of science and technology must able to be controlled and become a driving weapon for students to be able to continue to develop their potential in a field that is believed to be a support for the strength of student readiness as a golden generation.

Students as one of the most influential layers of society are expected to be able to compete when Indonesia becomes golden. Students are also part of the drivers of change or what is often called the agent of change, so creative and innovative ideas from students are needed for progress and change in a better direction. However, even so, students are expected to be students who also have good character and ethics, in accordance with the demands of education and the demands of the world of work, namely having human beings with character.

## **2 Research Method**

This paper uses a qualitative analysis using a literature approach. The theoretical basis used in this paper is the structural functionalism theory of Talcott Parsons. The well-known formulation of this theory is the AGIL formula (Adaptation, Goal Attainment, Integration, and Latency). Adaptation is a situation in which the system must adapt to the existing environment and situation. The point here is, the condition of golden Indonesia that will occur in 2045, the existing system must adapt to the situation that will occur, namely that there will be many productive ages in that year. So that the readiness carried out by the system at this time is part of the adaptation to the changes that will occur later.

Next is the achievement of goals. The main purpose of the golden Indonesia event is to advance the Indonesian nation in a better direction, so that this goal must really be realized with extraordinary competition from various groups, including students. Healthy competition shows the progress of the skills of the Indonesian people. Next is integration, the system must be able to manage the parts that exist in these situations and conditions so that later a good relationship will be established so as to avoid conflict. The last is pattern maintenance, the system here must be able to complement, maintain, and improve both socially and culturally. Because both of these values must be maintained, don't let there be a golden Indonesia event that is predicted by all parties, we as part of the system forget the social and cultural values that are inherent in the Indonesian nation.

## **3 Result and Discussion**

### **3.1 Utilization of Technological Developments by Students**

Information technology is a series of computer technology and communication technology in which the two technologies are interrelated and have the function of conveying and disseminating information. Technological advances are currently experiencing very rapid development so that we can feel for ourselves how the impact caused by these technological developments and In this case the development of technology does not only affect one aspect but all aspects of human life. Information and communication technology that is present in our midst at this time offers various kinds of conveniences and this is what we are feeling at this time about how technological advances are present in the midst of society and have a significant impact or influence on society, as a simple example we can see how the development of information technology has made us able to receive various news from every part of the world and also advances in communication technology that make it easier for all forms of receiving information to be entered and received easily.

The development of information and communication technology is certainly balanced with the adaptation of each user, because in this case the better the pattern of adaptation that is carried out, the more effective the use of this technology can be further developed and improved. In addition to these adaptation patterns, of course the next step is how easy access to information technology can support the ability to use and utilize information technology. Technological progress certainly does not only lead to positive things and will always go hand in hand with various negative impacts on the side, about how the adaptation of technological progress cannot be well received by all groups and in the end the sophistication and convenience as well as the advantages offered by the rapid development of technology it cannot be used as it should.

Students as community figures who are considered to have higher intellectual abilities are figures or social agents who are expected to be able to take advantage of existing information technology developments and be able to filter and share back to the community how technological advances can ultimately be accepted and utilized according to their functions. As we all know that not all groups can accept technological advances 'broadly', but there are still many who have difficulty and even 'wrong' in utilizing existing technological advances at this time.

We can see and witness the use of technology for students at this time for themselves how technological developments are not a problem or a barrier but rather a thing that opens up opportunities for everyone and of course for students who are known as creative people and have high intellectual abilities. said high is able to enter and utilize technology very well and wisely. During the current Covid-19 pandemic it can be easily witnessed how students take advantage of technological advances in each lesson

and do not feel awkward about using the various platforms and media offered when there are no other options and problems that students may face are problems. another is about how they complete what is on the e-learning page or the online learning platform they use.

### 3.2 Students as Agents of Change

Advances in science and technology have provided a transformation for Indonesia into a very difficult transition period, this includes political, economic and social life very much in tandem with advances in science and technology (Idris, 2013). Change and transformation have an impact on the emergence of parties who then have the role of agents of change Change agents are defined as people who act as triggers for a change that can have a positive or negative impact and people who have the passion to encourage someone and inspire enthusiasm on the person and those who dare to challenge the status quo and can cause a crisis in order to support dramatic action and change efforts (Istichomaharani, 2016). Students as agents of change in this case we see in reality that students are an extension of society where students have a big role or contribution to existing changes and are also the cause of the change itself. At the present time, as we know how advances in technological development have been able to enter every aspect of life and have a major influence on the sustainability of this nation, and this is where the role of students determines where the direction of change will be and how these changes can be a positive influence and able to set aside the negative consequences arising from these changes.

Along with the use of technological advances carried out by students, students will also become agents of change who are able to create new things that bring benefits and create opportunities and pave the way for the creation of new patterns that are expected to become new innovations. In this case we see how students are now more existent and courageous in expressing themselves and this is a form of how the changes that are formed later can be beneficial not only for one party but for every layer of society. Changes made in aspects of critical thinking patterns and also changes in utilizing existing technological developments and being able to relate them to all social aspects, in this case it can be seen that today's students are more open and 'brave' so that they exist more and this is one way to change made by students where they are the result of a change and in the end they also give birth to change.

Technological developments have produced many groups of people and compartmentalized each of them into sections that are different from one another so that the diversity of opinions, mindsets, and also ways of acting for each person and group is certainly different and this is where the role of students as agents of change to be able to make certain phenomena or decisions that tend to lead to a negative direction to be dampened. In certain cases students can be said to be able to dampen and divert these negative issues to a more calm direction, and in certain cases the technological developments that are occurring at the present time have a significant role in overcoming problems that arise and are able to reduce problems that are considered to be detrimental many parties.

There have been many cases or phenomena that have succeeded in rising to the surface and being responded to by the authorities properly and completely because of the role of students as users of information and communication technology who are able to penetrate their goals to fight for their rights and sustainability as human beings with high intellectual ability and courage. voicing and also utilizing whatever they can use and be useful in achieving the desired goals, although not yet fully the ways or methods used by students to create change and have a positive impact on these changes at least the ability to take advantage of what is there and be able to achieve its goals then this is already a form of business that he does as a student who is an agent of the change.

### 3.3 Readiness of Students as the Golden Generation

The golden generation is a conception that has considerable relativism with its relation to the moral and physical qualities of the nation's successors. This concept is often strongly associated with the digital world in the midst of technological developments and the current 4.0 industrial revolution. The golden generation is predicted to be the final visionary which is the main goal of existing technological developments. Referring to (Darman, 2017) the period for planting Indonesia's golden generation starts from 2012 to 2035. This is of course an important thing to understand that 2021 is still the peak of regeneration in preparation for the birth of a golden generation in the future. Automatic change demands will affect the expected dynamic changes in the quality of human resources. Fundamental things that need to be taken into consideration to provide balanced synergy between world developments and their completeness with adaptive readiness of humans as driving actors are of course central things that need to be prepared from an early age.

Structured developments in the order of changing times have been so mature to bring human beings to a level of life that is truly worthy for them to navigate. This includes students as the nation's next generation who will serve as a golden legacy to shape a more advanced future life. The transition that occurred from an era with a level of standardization far below today's developments, is a new challenge that will be a question of how prepared students are in facing all forms of adaptation that will be the demands of their lives while living in the midst of the fragmentation of the industrial revolution 4.0. The shift that occurs from one era to another is a new fear that becomes a measuring stick about the extent to which the mentality of readiness that appears in students in this case can be well formed.

The periodization range that has been measured is also a real part of a long journey with various hurdles and obstacles that will be passed by the younger generation. Formation is often said easily, but apart from that the generation that will be formed as a "gold" product is not a term that can only be said in a blink of an eye. Technical constraints that allow for various imbalances between the quality of students, in this case the younger generation, which is the expectation of all parties, may contradict the reality of policies or the influence of doctrinal influences from outside parties as external influences.

Broadening horizons in seeing this can use reflections that depart from two points of view. First, the preparation of the younger generation towards the top generation in the social order of life from an internal perspective, in this case will involve physical and non-physical mentality. The self-strength of each individual with self-reinforcing milestones to choose and sort out the extent to which their self-foundation is strong to deal with the existing situation. Values that change from one era to another are part of the culmination of the awareness possessed by individuals to carry out reconstruction by paying attention to modern values that are growing and developing at this time.

Apart from the issue of internal privacy, encouragement from outside as a driving force that will provide a stimulus for the formation of the quality of the younger generation, in this case, is the emphasis that external factors outside of students also have an important role in preparation for forming the golden generation in the future. Students live in an environment of educational level which can be said to be at the highest structuration in the level of education in Indonesia. The reality is that students shape their mindset with a sizable percentage in the campus environment. The formation of character and values that are in line with the nation's hopes for the future in the golden abyss which is expected to depend heavily on the internalization of morality and intellectual and non-intellectual values that they get while in the campus environment. Apart from that, the problem of the campus environment will also lead to the realm of high flexibility. It can be in a formal or non-formal context.

The formal scope that will determine the readiness of students to reach their golden age is the lecture environment itself. Meanwhile, if you look at realistic indicators from the opposite, related to the non-formal sphere, students' self-foundation, in this case, can be maximized in extra- and intra-society settings, such as organizations and peers as the closest relatives and friends who will shape the mindset of the younger generation in current era. However, one thing needs to be emphasized here. If you look at the real context, by ignoring hidden or pseudo-things, it is impossible to say that the mindset and readiness of students have reached their peak of optimization. The role of gadgets and all related devices also enables individual professionalism, in this case the younger generation, to be more selective in seeing, accepting, and internalizing the patterns presented on smartphones, which currently can be held by anyone without being hindered by distance and time.

This simple opinion can be carried out with the existing facts, that currently students are still in a transitional crisis. There are still a number of mindsets that need to continue to be socialized in order to become real karate which is the introduction to the formation of a golden generation that can provide a breakthrough for change with a far more fantastic journey with today's stable conditions.

### **3.4 Students as Drivers of Innovation in the Digital Age**

Talking about innovation, not just discussing something new and never existed before. More than that, reforms that have provided a new frame for the order of life will be in line with the formation of critical thinkers who are based on the desire to create a variety that is different from anything that has ever existed. Students who are being prepared to reach the golden stage in the previous discussion will have a creative mindset so that innovations emerge that have an impact on the development of a more pragmatic life climate. As students who are critical and live side by side in the midst of the industrial revolution 4.0, it is only natural that digitalization is used as an arena for healthy competition by utilizing innovative and creative mindset strategies.

The data states that the use of digital platforms in this case is related to the number of internet users in Indonesia reaching the 3rd highest rank in Asia (Kusnandar, 2021). Departing from this data, the positive side that can be seen is a form of opportunity that can be used as a driving force for the creation of a new

order that will give birth to long-term patterns of innovative products. Empowerment in such contexts is a manifestation of the young generation's skills in opening networks as wide as - breadth in order to gain usefulness in life. Students within the scope of the younger generation have a high level of operational proficiency in utilizing and using digital devices with the availability of various platforms. This extraordinary level of expertise should have a balanced resistance with its productivity results in creating a new climate of change in the era of the industrial revolution 4.0.

This order of renewal can be seen in several forms of shifting in the use of human power to the use of technology as a result of developments that allow the emergence of the necessity to make everything instantaneous and can be carried out effectively and efficiently in terms of time and cost. The wise young generation, in this case students as a group that can be said to be included in the educated group, should make the best use of this. One of these skills and proficiency can be seen in the pattern of changes in the use of digitalization-based media, for example in the application of the learning process in the world of education. As students who are in the realm of academic specialization around education, the formation of this innovative character can be started by providing an overview of the universal use of digital-based learning media.

Creators are one of the concrete forms of innovation carried out by students as an educated young generation in responding to the times in the era of the industrial revolution 4.0. Not only being a real active person but also needing to be active in the existing platform utilization sector. It is necessary to make digital media a place for self-exploration as well as carry out deeper elaboration in order to penetrate far more developed opportunities with governance and think far into the future. Seeing opportunities is one of the inherent characteristics of the younger generation who live in the current era of technological development and digitalization. One of the things that is essential considering that content creators are so promising today is as an addition to the digital literacy of the younger generation (Rahmawan et al., 2019). Students, in this case, as an educated generation in the midst of climate change, really need a strong dependence on digitalization, especially literacy. The habit of reading is a central part that can restore as well as open their horizons to act rationally in accordance with the strong competition that is currently in front of their eyes. Departing from this, progress that departs from innovation in renewing digital literacy is part of a capable strategy to provide progress in the midst of the development of the industrial revolution 4.0. This strategy is part of a form of regulation of digital dynamics that are currently rife in the majority of the population that inhabits the face of the earth, especially Indonesia.

Opportunities are not only in the short term, but there needs to be medium and long term considerations. If currently the innovations being carried out are considered unable to penetrate the existing digital climate, then of course that cannot be said to be a success but only a useless failure. Furthermore, if the development of the times only makes innovations or renewals limited to the current time period or up to the reach of the medium-term periodization then of course that is also a picture of a fatal loss and cannot be said to be an innovation that is in the climate order in the revolutionary era. industry 4.0.

## 4 Conclusion

Technological developments are increasingly experiencing significant developments. Today we are required to be able to adapt and continue to innovate in dealing with the times that require us as students to continue to develop intellectual abilities. Not only that, non-academic collaboration also needs to be emphasized to provide active reflection on the quality and quantity of students towards golden times in the next few years. Selective behavior in developing existing innovations as part of the generation of change drivers is of course currently in a central position which inevitably requires students to keep moving forward and carry out sustainable elaborations. Students as part of society are often considered to have higher intellectual abilities and to contribute actively to control that are able to take advantage of the development of information technology that develops in accordance with the existing order in people's lives.

The structured dynamics of the changing times are so mature that humans are at a level of life that is truly worthy for them to navigate. In this case, students as the next generation of the nation which is proclaimed as the golden generation of 2045 are able to shape and produce a more advanced future life. and also provide active participation in the development of human resources as the nation's generation of hope. Opportunities for students to progress as the golden generation certainly require innovation and also a creative mindset so that reforms emerge that impact the development of the climate of life in a more pragmatic range. Opportunities that are owned are not only short-term opportunities but need to consider the medium and long term.

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